UNCRATING/INSTALLATION INSTRUCTIONS

BASIL® 6000

Tunnel Cage Washer

(01/19/01)
Rev. 2

P-910000-017

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A WORD FROM STERIS CORPORATION

Follow each step of the uncrating/installation instructions **in the order presented**. Open the carton carefully to avoid damage to the equipment inside. If you find any indication of damage to the equipment (no matter how slight), show it to your supervisor.

To properly install this unit, you will need the Equipment Drawings (previously furnished), showing all utility service and space requirements. If drawings cannot be located, replacement copies may be obtained by writing, faxing or telephoning STERIS giving the serial and model numbers of your equipment.

Once installed, equipment operation should be tested by a qualified service technician prior to your usage of the equipment.

If STERIS supervision is desired, for installing and starting up this equipment, contact your local STERIS representative.

Indications for Use

The **Basil® 6000 Tunnel Cage Washer** is intended for thorough, efficien cleaning of cages, debris pans, bottles, feeder bowls, and miscellaneous items used in the care of laboratory animals.

This washer is specifically designed to only process goods as outlined in this manual. If there is any doubt about a specific material or product, contact manufacturer of the product for the recommended washing technique.

Advisory

A listing of safety precautions to be observed when uncrating, installing and testing this equipment can be found in Section 1 of these instructions. Do not begin uncrating/installing this equipment until you have become familiar with this information.

Any alteration of the washer not authorized or performed by STERIS Engineering Service which could affect its operation will void the warranty, could adversely affect washing efficacy, could violate national, state and local regulations, and could jeopardize your insurance coverage.

IMPORTANT: Be sure to check local occupational health and safety regulations, as well as electric and plumbing codes, for any special requirements that may pertain to installation of this unit.

Service Information

A thorough preventive maintenance program is essential to safe and proper equipment operation. You are encouraged to contact your STERIS representative concerning extended service maintenance agreements to give your washer planned maintenance, assuring equipment performance according to factory specifications. A global network of skilled service specialists can provide periodic inspections and adjustments to assure low-cost peak performance. STERIS representatives can provide information regarding Annual Maintenance Agreements.

STERIS carries a complete line of accessories for use in this equipment. A STERIS representative will gladly review these with you.

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Spain	34 91 658 5920
Sweden	46 152 228 30
United Kingdom	44 1 276 683 300

Web site: www.steris.com

Certification

The **Basil® 6000 Tunnel Cage Washer*** meets the applicable requirements of the following standards:

Underwriter Laboratories (UL) Standard 1262, as certified by ETL Testing Laboratories, Inc.

**Except units with the pH Neutralization and Detergent Monitoring System.*

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LISTING OF WARNINGS, CAUTIONS AND SYMBOLS

1

The following is a listing of the safety precautions which must be observed when uncrating, installing and operating this equipment. WARNINGS indicate the potential for danger to personnel, and CAUTIONS indicate the potential for damage to equipment. These precautions are repeated, where applicable, throughout the instructions.

WARNING - PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:

Only fully qualified service personnel should assemble and/or make adjustments to this equipment. Assembly or adjustments done by inexperienced, unqualifed personnel could cause personal injury or result in costly damage. Contact your STERIS sales or service representative regarding service options.

WARNING - ELECTRICAL SHOCK AND/OR BURN HAZARD:

Disconnect all utilities to washer and conveyor before servicing. Do not service the washer and conveyor systems unless all utilities have been properly locked out. Always follow OSHA Lockout-Tagout and electrical safety-related work practice standards.

Fasteners and star washers are used to ensure protective bonding continuity. Always reinstall any star washer which may have been removed during installation or servicing.

WARNING - LACERATION AND/ OR EYE INJURY HAZARD:

When removing bands, wear gloves and eye protection, and always use a tool specifically designed to cut the bands. The bands used to secure this carton can cause personal injury when cut and tension is released.

WARNING - LACERATION HAZARD:

Wear gloves to protect your hands when removing bolts.

WARNING - PERSONAL INJURY HAZARD:

When positioning cabinet sections, use a pallet jack due to section weight and size.

When installing high voltage electrical control box, more than one person is required to lift control box in place due to its weight and size.

WARNING - BURN HAZARD:

Pipes may be extremely hot.

When opening load-end neoprene curtain to observe pre-wash spray, hot (180°F [82°C]) water may be sprayed out of the chamber if spray is adjusted incorrectly.

WARNING - FALL HAZARD:

To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

CAUTION - POSSIBLE EQUIPMENT DAMAGE:

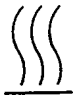
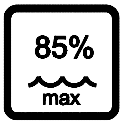
After utilities are connected to washer, slowly remove the protective adhesive paper from the exterior cabinet panels to reduce the risk of static discharge.

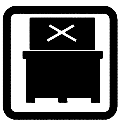
When removing adhesives from stainless steel, use a small amount of non-flammable cleaning solvent. Rub in a back-and-forth motion (in same direction as surface grain). Solvent rubbed in a circular motion or applied with a wire brush or steel wool on door and chamber assemblies can be harmful to stainless steel. Do not use solvents on painted surfaces.

Once three-phase power is connected, check pump for correct rotation (indicated by arrow on pump motor). Incorrect pump rotation may result in pump damage and improper cleaning action.

IMPORTANT: Be sure to check the local occupational health and safety regulations, as well as electric and plumbing codes, for any special requirements that may pertain to installation of this unit.

Symbols

Symbol	Definition
	Transfer of Heat, Hot Surface
	Protective Earth (Ground)
	Warning! Risk of Electrical Shock
	Electrostatic Sensitive Device
	Attention, Refer to Manual for Further Instructions
	Tip ‘N Tell
	Maximum Relative Humidity
	This Side Up

Symbol	Definition
	Keep Dry
	Fragile
	Do not Stack
	Maximum Temperature
A	Amperage Rating of the Unit
V	Voltage Rating of the Unit
~	Alternating Current
kVA	Power Rating of the Unit
Hz	Frequency of the Unit
ϕ	Phase of the Unit

Before Installing Equipment

1. Review installation requirements:
   a. Review permissible environmental conditions: This equipment is designed to give optimal results in an environment where maximum relative humidity is 80% for temperatures up to 88°F (31°C), decreasing linearly to 50% relative humidity at 104°F (40°C).
   b. Clearance space shown on Equipment Drawing is necessary for easy installation and proper operation and maintenance of unit.
   c. Utility Service Lines:
      1) To allow service on unit without shutting off building supply lines, shutoff valves (not by STERIS) should be installed on air, steam and water lines to unit. Shutoff valves must be capable of being locked in the OFF position.
      2) Disconnect switches (not by STERIS) should be installed in electric supply lines near unit (within 10 feet). Disconnect switches must be capable of being locked in OFF position only.
      3) If this machine is installed next to other equipment, shutoff valves and disconnect switches should be located so that service can be shut off to one piece of equipment at a time.
      4) Utility service requirements are shown on Equipment Drawing.
2. Check local occupational health and safety regulations as well as local electrical and plumbing codes for any special requirements that may pertain to the installation of this equipment.
3. Check floor level and slope to determine the height to which first section should be raised above floor when leveling. If floor is not very level, start at highest point of floor area and work outward.
4. Mark preliminary position of Pre-Wash section on the floor. Use dimensions from room layout drawings and measurements of the unit width, and the distance from front end of unit to first obstruction (e.g., door). Make sure to include length of loading tray, if applicable.

   IMPORTANT: If Pre-Wash Section is not positioned properly, all adjoining sections of the unit will be misaligned and more difficult to assemble.

VOLTAGE, AMPERAGE AND POWER CONSUMPTION

The **Basil® 6000 Tunnel Cage Washer** operates on:

- 208 V~, 60 Hz, 3-phase
- 240 V~, 60 Hz, 3-phase
- 480 V~, 60 Hz, 3-phase

The maximum current and power consumptions are:

Voltage	Model Numbers					
	6024 6224	**6024D1/ 6223D1**	**6024D2/ 6224D2**	**6036/ 6236**	**6036D1 6236D1**	**6036D2 6236D2**
208 V	40.1 A	53.6 A	67.1 A	45.6 A	59.1 A	72.6A
240 V	35.1 A	47.3 A	59.5 A	40.3 A	52.5 A	64.7 A
480 V	16.6 A	22.7 A	28.8 A	20.2 A	26.3 A	32.4 A

PERMISSIBLE ENVIRONMENTAL CONDITIONS

This equipment is designed to give optimal results in an environment where maximum relative humidity is 80% for temperatures up to 88°F (31°C), decreasing linearly to 50% relative humidity at 104°F (40°C).

SEISMIC ANCHORAGE SYSTEM

A Seismic Anchorage System is available for high risk seismic zones.

Open Crates

A fully equipped unit should consist of the following crates (total number of crates depends on the options purchased):

- One Pre-Wash section
- One Wash section
- One Rinse section
- One Drying section (option)
- One Discharge Conveyor section (option)

WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Only fully qualified service personnel should assemble and/or make adjustments to this equipment. Assembly or adjustments done by inexperienced, unqualified personnel could cause personal injury or result in costly damage.

WARNING - PERSONAL INJURY HAZARD: When positioning cabinet sections, use a pallet jack due to section weight and size.

WARNING - LACERATION AND/ OR EYE INJURY HAZARD: When removing bands, wear gloves and eye protection, and always use a tool specifically designed to cut the bands. The bands used to secure this carton can cause personal injury when cut and tension is released.

NOTE: Shipping pallets must remain attached to each cabinet section until after each section is assembled.

NOTE: If you are installing more than one Basil® 6000 Tunnel Cage Washer at the same time, sections from different units are numbered separately, to facilitate uncrating and installation of the unit, and avoid confusion. ***Two sections from different units cannot be assembled together.***

NOTE: Each section weighs at least 1230 lbs (580 kg). Maximum crate weight is approximately 4000 lbs (1800 kg). Use a forklift to move sections.

NOTE: Uncrate on a level floor as close to installation site as possible.

NOTE: Check each crate for identification sticker indicating crate number (1 of X) and section name (see Figure 3-1).

1. Check Tip Indicator on crate (see Figure 3-1). Tip Indicator contains a blue compound at the bottom of the indicator. If unit has been tipped, residue from the blue compound will be found higher up in the indicator.

   If unit has been tipped, contact your STERIS representative to determine if a service technician is required to inspect the equipment and determine if unit was damaged.

2. Place crates near the final installation site in the following order : Pre-Wash, Wash, Rinse, Drying (option) and Discharge Conveyor (option). Provide a clear work area around each section (see identification sticker and Figure 3-1 for order of placement).

3. Carefully cut and remove bands from each crate. Discard bands before continuing.

4. Using a nail puller, remove and discard cardboard top panel.

5. Using a nail puller, remove and discard cardboard side panels.

6. Check Tip indicator located on the side of each section. Tip indicator contains a blue compound at the bottom of the indicator. If unit has been tipped, residue from the blue compound will be found higher up in the indicator.

   If any section has been tipped, contact your STERIS representative to determine if a service technician is required to inspect the equipment and determine if module was damaged.

7. Repeat steps 1 through 6 for each crate.

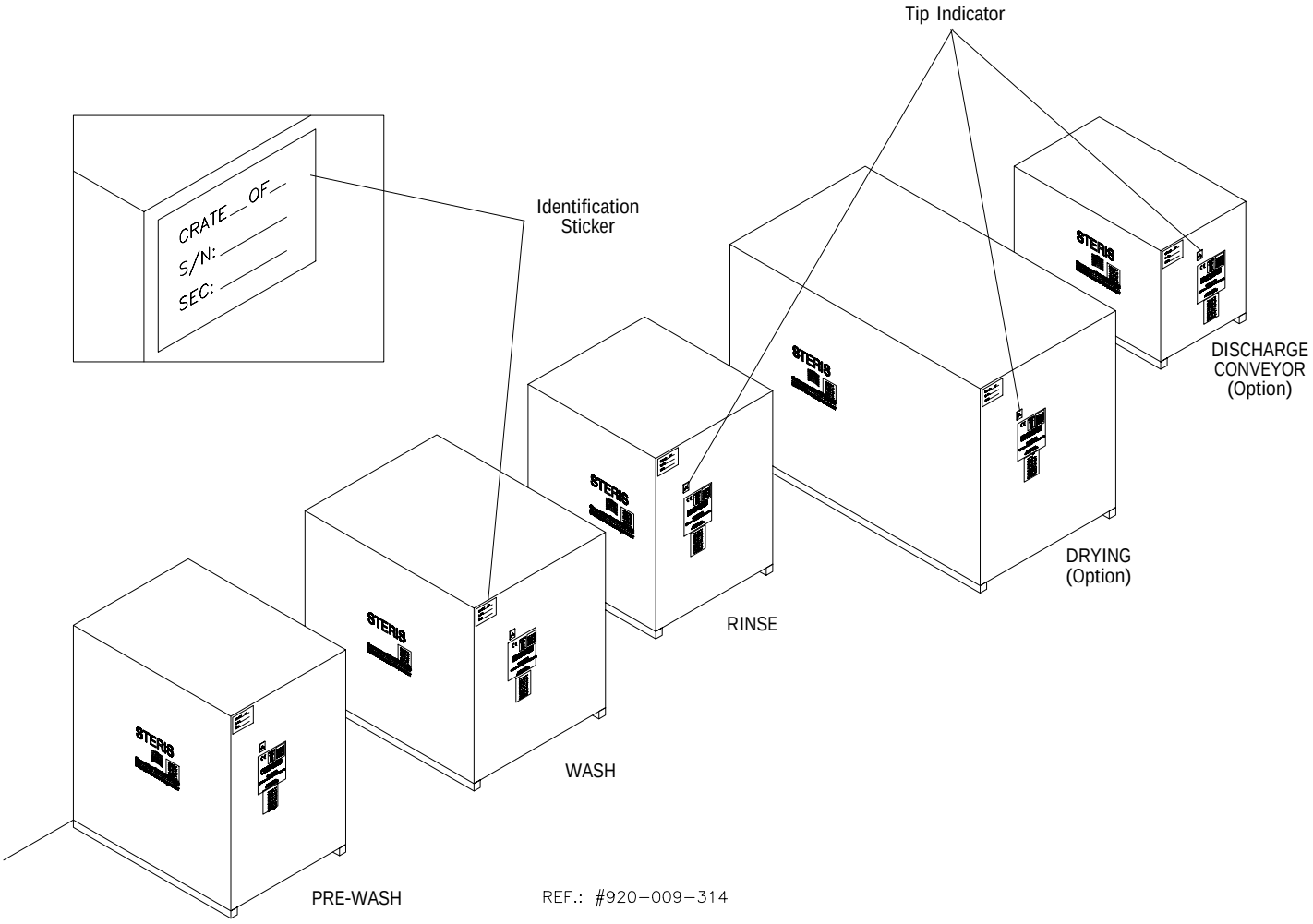


Figure 3-1. Crates

IMPORTANT: Items needed for the assembly of the unit are enclosed in two boxes labeled "Hardware" and "Components" included inside last crate (see number on sticker affixed on crate). "Hardware" box contains spare bolts, washers, nuts and other items. "Components" box contains the pipes and components that were removed from the unit during factory disassembly.

Prepare Equipment for Installation

⚠ WARNING - PERSONAL INJURY HAZARD: When positioning cabinet sections, use a pallet jack due to section weight and size.

⚠ WARNING - LACERATION AND/ OR EYE INJURY HAZARD: When removing bands, wear gloves and eye protection, and always use a tool specifically designed to cut the bands. The bands used to secure this carton can cause personal injury when cut and tension is released.

NOTE: Shipping pallets must remain attached to each cabinet section until after each section is assembled.

NOTE: Do not remove protective adhesive paper from the exterior cabinet panels until after utilities are connected.

Pre-Wash, Wash and Rinse Sections

1. Remove all protective polystyrene wrap from around section.
2. Remove envelope labeled "Customer Information" (containing Operator Manual) from Pre-Wash section. Give Operator Manual to STERIS personnel designated to start up the unit.
3. Remove adhesive tape securing filter trap.
4. Carefully remove protective polystyrene wrap from dials (option).
5. Carefully cut and remove nylon strap securing wash chamber door.
6. Remove adhesive tape and wooden protector securing debris screen at bottom of wash chamber.
7. Carefully cut and remove nylon strap securing wash chamber top and bottom rotating spray arms.
8. Carefully cut and remove nylon straps and polystyrene wrap securing chamber curtain(s).

Drying Section (option)

9. Remove all protective polystyrene wrap from around section.
10. Remove adhesive tape securing filter trap.
11. Carefully remove protective polystyrene wrap from dials (option).
12. Remove wooden supports securing drying section. Discard wooden supports.
13. Carefully cut and remove nylon straps and polystyrene wrap securing chamber curtain(s).

Discharge Conveyor Section (option):

14. Remove all protective polystyrene wrap from around section.
15. Remove wooden supports securing conveyor into place and remove two screws attaching conveyor to wooden base.
16. Remove wooden supports securing pumps into place and remove two screws attaching pump to wooden base.
17. Carefully cut and remove nylon straps securing conveyor belt.
18. Carefully cut and remove wooden blocks and nylon straps securing conveyor belt lock.

General Guidelines

1. All mounting hardware necessary for complete installation is shipped with the unit. Not every piece of mounting hardware will be utilized; ample amounts are provided.
2. Use silicone provided in Installation Kit to seal all section joints to assure water tightness. When caulking, silicone bead should be a minimum of 1/4 inch wide and completely circle all bolt holes. When in doubt, use silicone liberally. It is easier to prevent a leak during assembly than to fix a leak once equipment is in use.

Cabinet Sections

NOTE: Cabinet sections must be completely assembled within the same day, before silicone hardens.

1. Move pre-wash section to preliminary position marked on the floor.

NOTE: Pre-wash section is the only section with holes located along the face of the cabinet (see Figure 4-1).

⚠ WARNING - PERSONAL INJURY HAZARD: When positioning cabinet sections, use a pallet jack due to section weight and size.

2. Position each section two feet apart using pre-wash section as the starting position (see Figure 4-2).
3. Silicone around and between all bolt holes on cabinet and flanges (L-brackets) (see Figure 4-3). Make sure to silicone in a consistent line.

NOTE: When caulking, fully open caulk nozzle to allow for a heavy silicone bead.

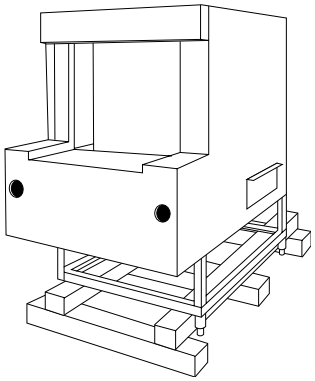


Figure 4-1. Pre-wash Section

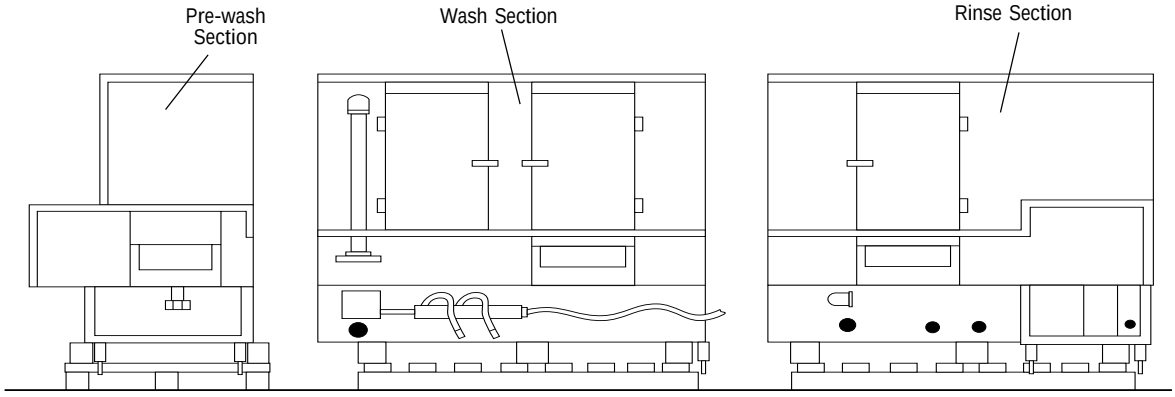


Figure 4-2. Position Cabinet Sections

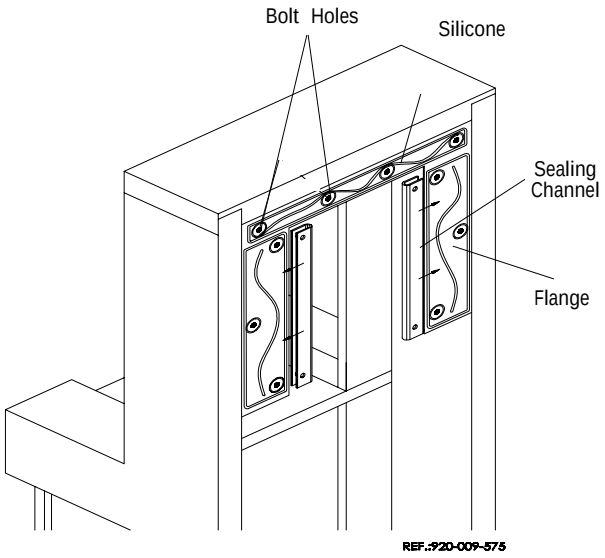


Figure 4-3. Silicone Around and Between Bolt Holes

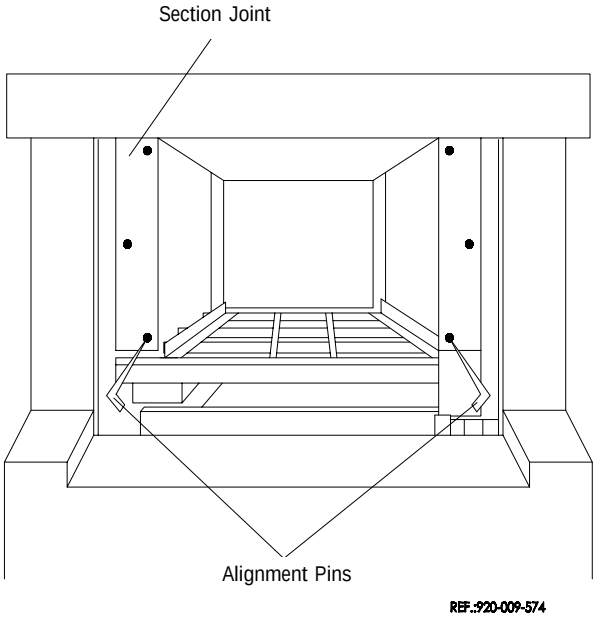


Figure 4-4. Insert Alignment Pins

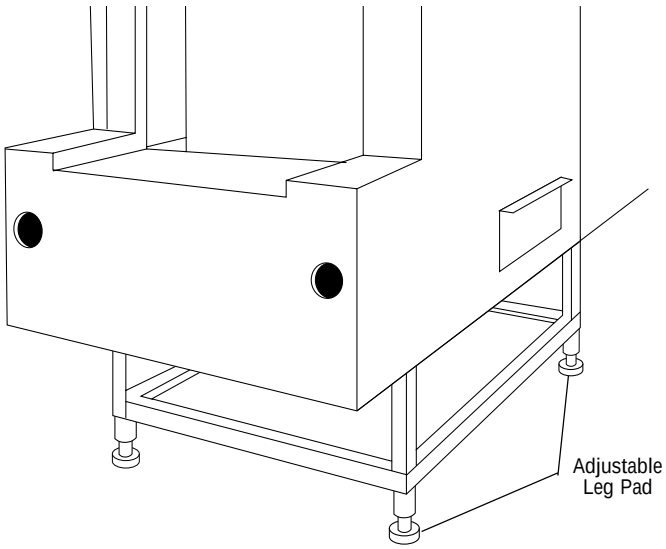


Figure 4-5. Place Cabinet Legs in Pads

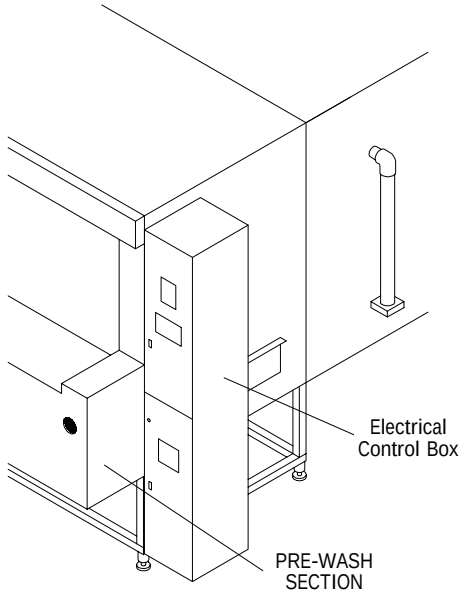


Figure 4-6. Attach Electrical Control Box

⚠ WARNING - PERSONAL INJURY HAZARD: When positioning cabinet sections, use a pallet jack due to section weight and size.

5. Using a pallet jack, move the second cabinet section up against the pre-wash section.
6. Insert alignment pins, one on either side of chamber opening, to align cabinet sections (see Figure 4-4).
7. Attach cabinet sections with bolts provided. Use “C” vise grips along the top section joint to temporarily hold the sections together while installing bolts.

NOTE: During section assembly, all bolts are installed snug (tight enough to flatten the silicone). Once cabinet sections are completely assembled, bolts will be securely tightened.

8. Lower cabinet legs as close as possible to the floor. Make sure each leg is placed in an adjustable leg pad (see Figure 4-5).
9. Safely remove shipping pallets from attached cabinet sections only.
10. Attach remaining cabinet sections following Steps 4 through 9.
11. Once all cabinet sections are assembled, install sealing channels (see Figure 4-3).

NOTE: Silicone interior of sealing channels.

⚠ WARNING - PERSONAL INJURY HAZARD: When positioning cabinet sections, use a pallet jack due to section weight and size.

12. Tighten all bolts 100%. Bolts must be tighten from inside of each chamber.

NOTE: Make sure all section joints are consistent from top to bottom of joint (e.g., section joint can not be tight at the top and spread at the bottom).

12. Using a pallet jack on both ends of the washer, move washer to final position. Final position should be in accordance with the supplied room layout drawings.

NOTE: If optional barrier wall flange assembly is to be installed between washer and wall opening, notches are provided on the cabinet section which passes through the wall opening. Make sure these notches are aligned with wall opening to allow for a flush fit between barrier wall flange and wall.

13. Check level of washer across the load end and unload end, and along the length of washer using a 2-foot (minimum) level. If necessary, adjust the front legs on the pre-wash section and the rear legs on the last section. Middle legs are strictly for stabilization.

Cabinet Service Side

NOTE: When attaching electrical control box to cabinet, control box door must be opened to access bolt holes

>> High-Voltage Electrical Control Box

⚠ PERSONAL INJURY HAZARD: When installing high voltage electrical control box, more than one person is required to lift control box in place due to its weight and size.

1. Attach high voltage electrical control box to side of Pre-Wash section (see Figure 4-6).
2. Connect the wiring harness of each section to the appropriate termination box. Terminate all wires. Match numbers from wires to corresponding connections in termination boxes.
3. If applicable, refer to Basil 3600 Uncrating/Installation Manual (P-122997-217) for proper electrical connections between tunnel washer and 3600 bedding dispenser.

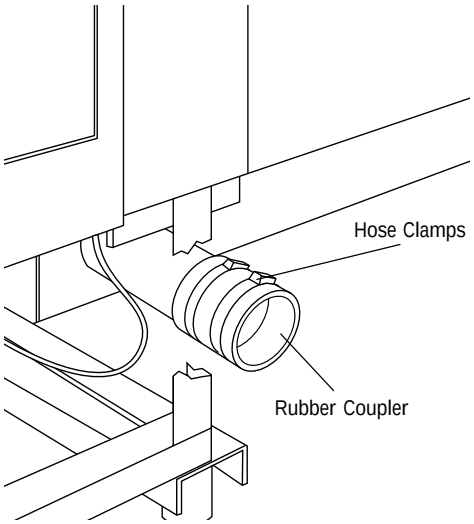


Figure 4-7. Install Rubber Coupler

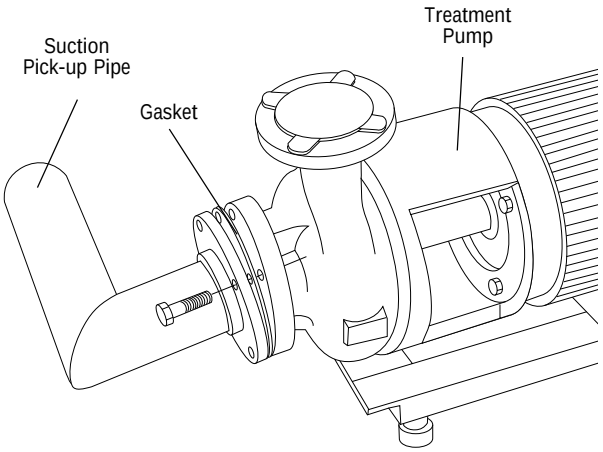


Figure 4-8. Attach Suction Pick-up Pipe

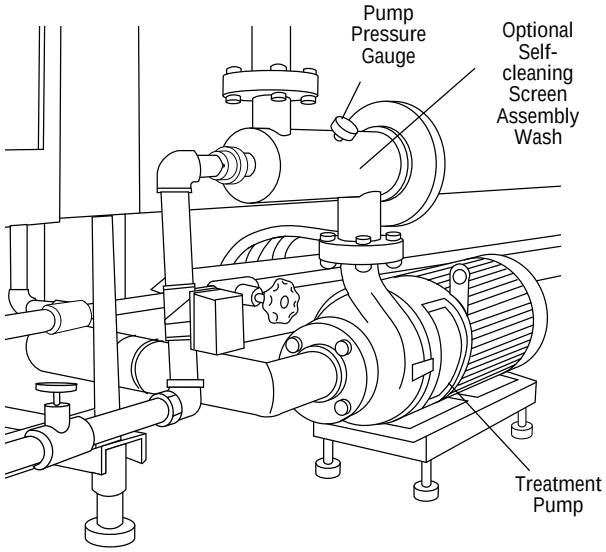


Figure 4-9. Connect Treatment Pump to Washer

>> Piping

NOTE: Each machine is piped differently. There is only one place for each pipe. Follow general guidelines listed in Step 4 to install piping.

4. Install all piping using guidelines listed below.

   a. Prep piping connections. Use pipe dope on threads and face of all unions. STERIS recommends use of liquid Teflon pipe dope, similar to Permalok.

   b. Attach black pipe to black pipe. Black pipe is used for steam supply and condensate. Condensate pipes normally have steam trap (thermodisk type) attached on the exit side of the steam coil.

   c. Attach brass pipe to brass pipe. Brass pipe is used for water supply.

   d. Attach stainless steel pipe to stainless steel pipe. Stainless steel pipe is used for spray header system and treatment pumps.

   e. Attach galvanized pipe to galvanized pipe. Galvanized pipe is used for drain.

   f. Install support brackets on vertical pipes as required.

>> Valves

5. Verify packing between incoming steam valve handles and piping is tight. If necessary, remove valve handle and tighten the packing nut.

6. Connect all solenoid valves to the appropriate locations.

>> Treatment Pumps

7. Install treatment pumps as follows:

   a. Place rubber coupler with two hose clamps over the pump piping connection on the washer (see Figure 4-7).

   b. Attach pump legs to base of pump.

   c. Loosely attach suction pick-up pipe (90° elbow) to front of pump with two bolts. Slide gasket between pick-up pipe and pump, and securely fasten pipe to pump (see Figure 4-8).

   d. If applicable, attach the optional self-cleaning screen assembly to top of wash pump with four bolts. Make sure the gauge flange is facing upright.

   e. Wire pump to washer according to the washer voltage indicated in the electrical control box.

   f. Move pump into final position. If necessary, raise height of pump assembly by adjusting the pump legs.

   g. Connect treatment pump assembly to appropriate piping connections on the washer (see Figure 4-9). If applicable, make sure to insert gasket between optional self-cleaning screen assembly and washer piping connection.

   h. Install pump pressure gauge.

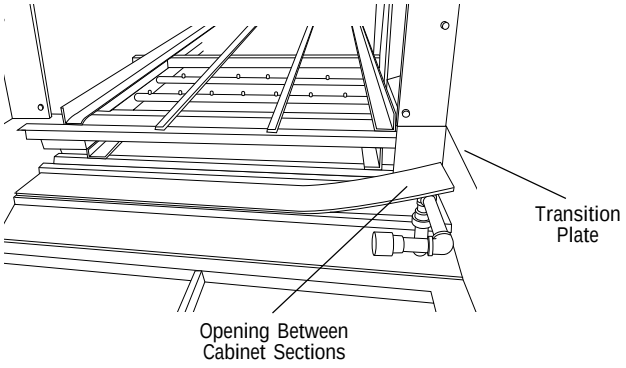


Figure 4-10. Check Length of Transition Plate

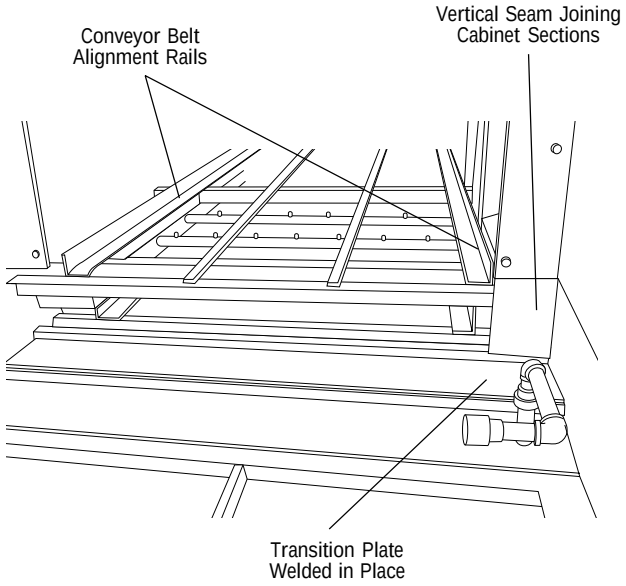


Figure 4-11. Weld Transition Plate in Place

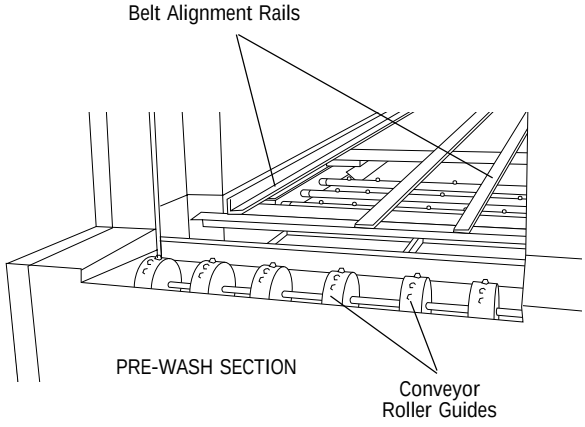


Figure 4-12. Remove Conveyor Transition Plate

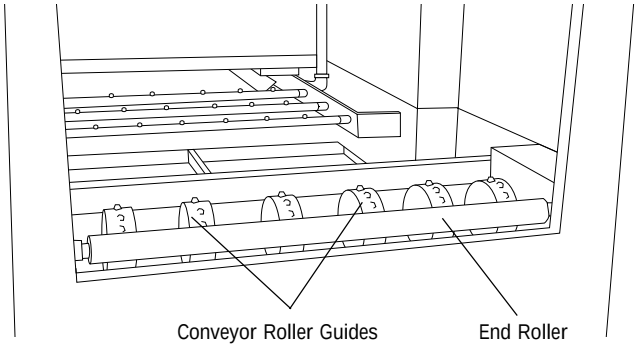


Figure 4-13. Install End Roller

Chambers (Cabinet Interiors)

NOTE: If desired, the chamber access doors may be removed for convenience while working inside the chambers.

1. Place transition plates in bottom of chamber, over each opening between the cabinet sections (see Figure 4-10). Determine the plate length necessary to fit securely in the opening.
2. Remove plates from chamber. Using a grinder, trim plates to the necessary length.
3. Before welding transition plates, remove main (110A) fuse from electrical control box.
4. From inside of chamber, weld transition plates in place (see Figure 4-11). Make sure welds are 100% water tight and along all four sides of the plate. Usage of a flexhead, 110V DC tig welder is recommended.

NOTE: No silicone is used on the transition plates. Chamber recirculating tanks are sealed with water tight welds only.

5. Once transition plates are welded in place, weld the vertical seams joining the cabinet sections (see Figure 4-11). Make sure welds are 100% water tight.
6. Remove conveyor transition plate from the Pre-Wash section (see Figure 4-12).
7. Install an end roller at both ends of the washer (see Figure 4-13).
8. Install water deflector between Rinse and Drying sections as follows (see Figure 4-14) :

NOTE: To ease installation, water deflector can be separated in two parts, if necessary.

   a. Insert water deflector between 1-1/4 x1-1/4-inch drying section upper angle and 1x1-inch conveyor angles.

   b. Assemble all parts using screws and jam nuts provided.

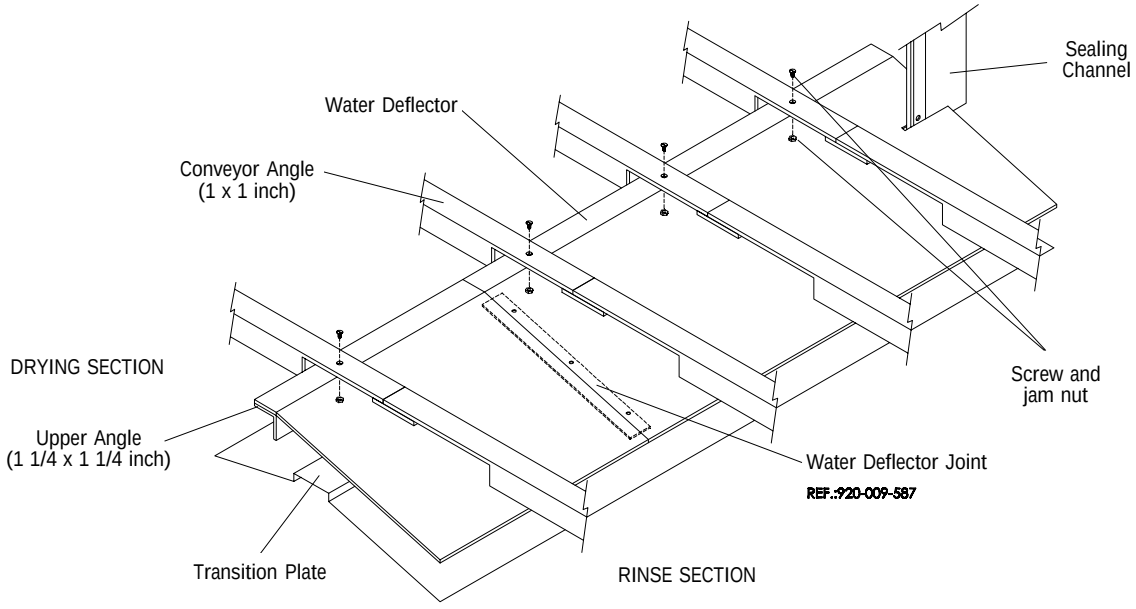


Figure 4-14. Install Water Deflector

9. Starting from one end, run the conveyor belt along length of the belt alignment rails, between roller guides and end roller and back underneath the alignment rails. Connect ends of conveyor belt with pins included in the Installation kit or with 11 gauge stainless steel rod. Make sure conveyor belt is positioned between the roller guides and end roller at both ends (see Figure 4-15).
10. From the front of the Pre-Wash section, reach into the chamber and lift up the conveyor belt. You should be able to lift the belt up 6 to 8 inches away from the alignment rails. If necessary, adjust the belt tension by evenly tightening the adjusting blocks, accessed through the holes located on the face of Pre-Wash section (see Figure 4-16). Use a 1-1/4" socket to tighten the two adjusting block bolts.
11. Re-attach conveyor transition plate to Pre-Wash section.

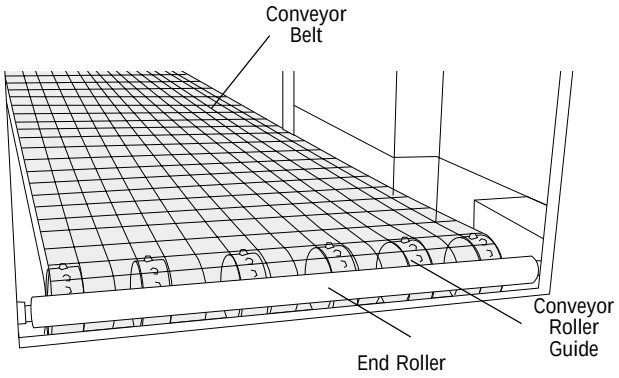


Figure 4-15. Install Conveyor Belt

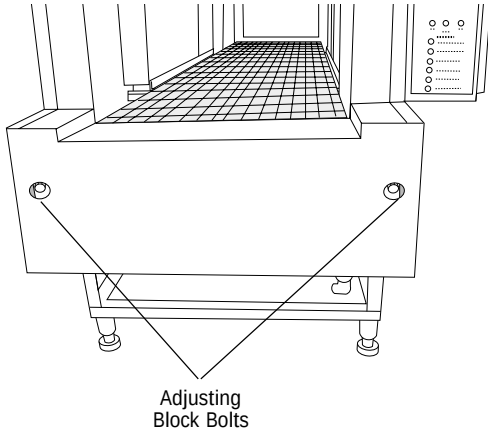


Figure 4-16. Conveyor Belt Adjusting Block Bolts

Final Assembly / Clean -Up

⚠ CAUTION: After utilities are connected to washer, slowly remove the protective adhesive paper from the exterior cabinet panels to reduce the level of static discharge.

⚠ CAUTION: When removing adhesives from stainless steel, use a small amount of non-flammable cleaning solvent. Rub in a back-and-forth motion (in same direction as surface grain). Solvent rubbed in a circular motion or applied with a wire brush or steel wool on door and chamber assemblies can be harmful to stainless steel. Do not use solvents on painted surfaces.

1. Trim excess silicone from the interior and exterior cabinet section joints. If necessary, silicone any gaps.
2. Sweep up all debris from chamber sumps.
3. Install neoprene curtains between each cabinet section and at both ends of the washer. Curtain fits between the channel block and side of the cabinet. Make sure each curtain hangs vertically.
4. If removed, replace all chamber access doors.
5. Remove all protective paper from the unit cabinet panels. Slowly peel paper away from stainless steel to reduce the level of static discharge.
6. Remove any adhesive found on panels, door(s) and inside chamber with a small amount of non-flammable cleaning solvent. Keep solvent away from all painted surfaces or damage may result.
7. Inspect unit and work area to be sure all materials used during installation have been removed.
8. If customer is connecting utilities, mark all service connections for customer's convenience.
9. Recommend to customer that building exhaust system be all male connections. All washer exhaust connections are female to allow any condensate contained in the building exhaust system to flow into the washer.
10. Recommend to customer that all drain pipes be centered over the drain hole. All drain holes should be 1-1/2 times larger than the size of the drain pipe.
11. Recommend to customer that sprinkler heads be mounted at least 10 feet away from the unit and be able to withstand temperatures of at least 190°F (88°C).

THIS COMPLETES THE INSTALLATION. Before operating the equipment, Installation Checklist (Section 5) and Operational Test (Section 6) should be conducted by a qualified service technician.

NOTE: Installation checklist must be completed after washer is assembled and prior to startup procedures.

Complete the following checklist to assure washer is correctly assembled:

- ❑ Control voltage (120 VAC) verified.
- ❑ Pump and motor voltages (3-phase) verified.
- ❑ Drive conveyor correctly rotating.
- ❑ Conveyor drive clutch correctly adjusted.
- ❑ Self-locking nuts, securing the belt alignment rails, tightened.
- ❑ Conveyor belt tension correctly adjusted.
- ❑ Wash pump amperage within rating indicated on pump motor.
- ❑ Rinse pump amperage within rating indicated on pump motor.
- ❑ All steam coil unions tightened.
- ❑ Each gear box plastic cap removed and replaced with air vent provided.
- ❑ All other unions tightened.
- ❑ Gray silicone used for exterior cabinet gaps.
- ❑ Excess silicone trimmed off.
- ❑ All sharp edges deburred.
- ❑ All welds polished.
- ❑ Electrical connections tight.
- ❑ All wires tied.
- ❑ All control panel lights working.
- ❑ Chamber solution screens cleaned and in place.
- ❑ Wash and Rinse recirculating tanks cleaned.
- ❑ All chamber curtains correctly installed.
- ❑ All cabinet legs are evenly tightened.
- ❑ Lockable shutoff valves installed in steam and water lines within 10 feet of the equipment.
- ❑ Disconnect switch (with OFF position lockout only) installed in electric supply line in the same room as the washer, and within 10 feet of the electrical control box.
- ❑ Washer positioned as shown on the equipment drawing with required service clearance space and in relation to building supply lines.
- ❑ Building steam line provides maximum dynamic pressure and flow rate as specified on the equipment drawing.
- ❑ Steam trap installed in steam supply line.

- ❑ Building hot water line supplies water to washer at the pressure and temperature specified on the equipment drawing.
- ❑ If applicable, building cold water line supplies water to washer at the pressure specified on the equipment drawing.
- ❑ If applicable, building pure water line supplies water to washer at the pressure specified on the equipment drawing.
- ❑ Electrical supply for washer is as specified on the equipment drawing.
- ❑ Customer condensate returns are sized as specified on the equipment drawing.
- ❑ Customer vent connections are sized as specified on the equipment drawing.
- ❑ Wash pump motor rotating in direction shown by arrow.
- ❑ Wash pump pressure is within 25 to 60 psig.
- ❑ Rinse pump motor rotating in direction shown by arrow.
- ❑ Rinse pump pressure is within 25 to 60 psig.
- ❑ Optional self-cleaning screen assembly functioning properly.
- ❑ All piping is leak-free.
- ❑ Optional dryer blower rotating in direction shown by arrow.
- ❑ Floor surrounding unit has nonslip surface.

IMPORTANT: After a few weeks of operation, inspect unit for leaks. Re-tighten all clamps and connections.

Startup Procedure

⚠ WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Only fully qualified service personnel should assemble and/or make adjustments to this equipment. Assembly or adjustments done by inexperienced, unqualified personnel could cause personal injury or result in costly damage.

⚠ CAUTION: Once three-phase power is connected, check pump for correct rotation (indicated by arrow on pump motor). Incorrect pump rotation may result in pump damage and improper cleaning action.

NOTE: Startup procedures are to be performed after utility connections and installation checklist are completed and prior to unit operation by the customer.

1. Turn main disconnect switch ON.
2. Check rotation of treatment pumps. Bump the motor starter and watch the pump shaft to see if it is rotating in correct direction. If pump shaft is rotating in wrong direction, disconnect main power, reverse any two high voltage wires and re-check pump rotation.
3. Close manual drain valves, turn on water supplies and check for piping leaks. Fix all leaks.

NOTE: Valve handle is perpendicular to pipe when utility supply is off. Rotate valve handle parallel to pipe to turn supply on.

4. Turn washer power switch to ON. Allow chamber recirculating tanks to fill. If necessary, fix all tank leaks.
5. Adjust drive system clutch. Remove chain guard and loosen the allen-head set screws on the 3/4" adjusting nut (see Figure 6-1). Torque the adjusting nut to 50 ft/lbs (average setting). Tighten set screws and re-install chain guard. When properly adjusted, drive clutch will disengage and stop belt movement if the conveyor belt is obstructed.

NOTE: Using the manual control mode, run the Belt function, to test drive system, and use potentiometer to adjust belt speed accordingly (see Figure 6-2).

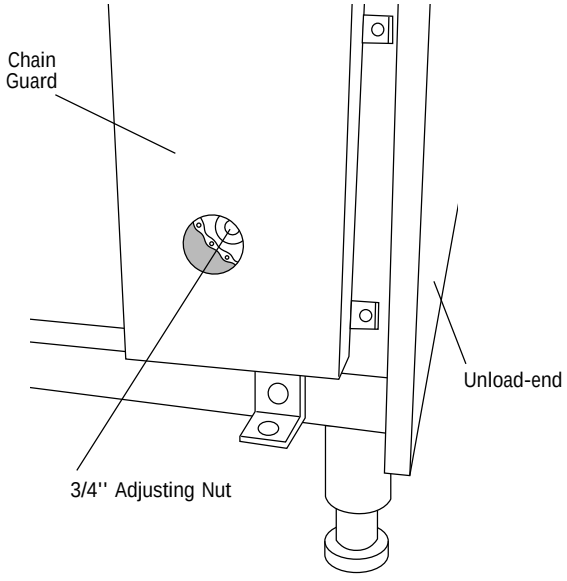


Figure 6-1. Drive System Clutch

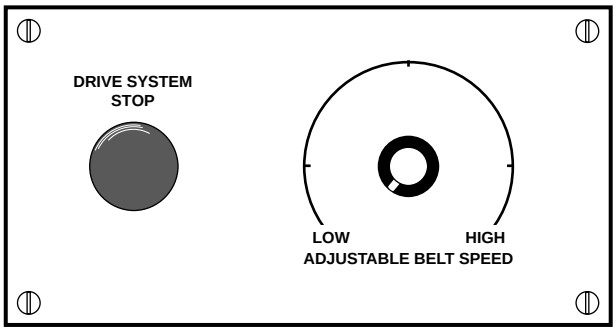


Figure 6-2. Drive System Control

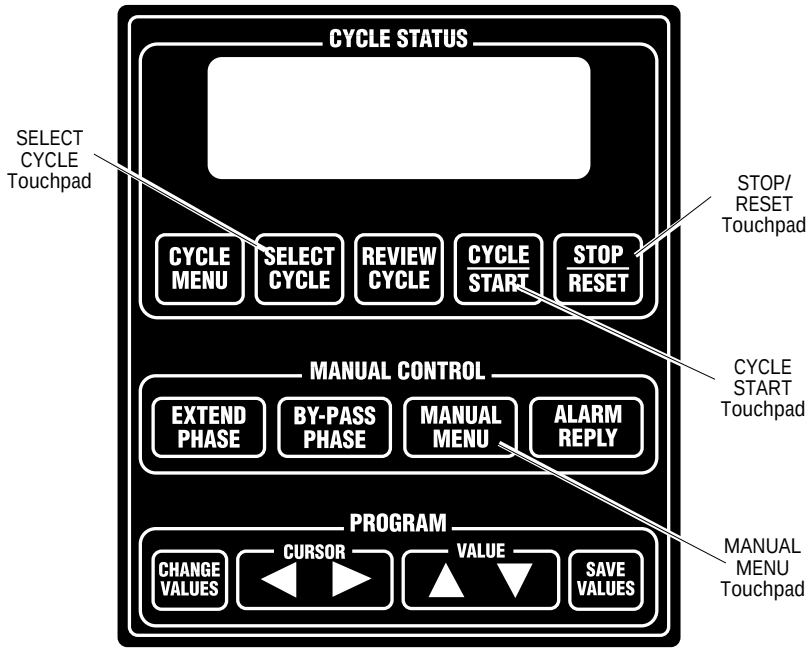


Figure 6-3. Control Panel

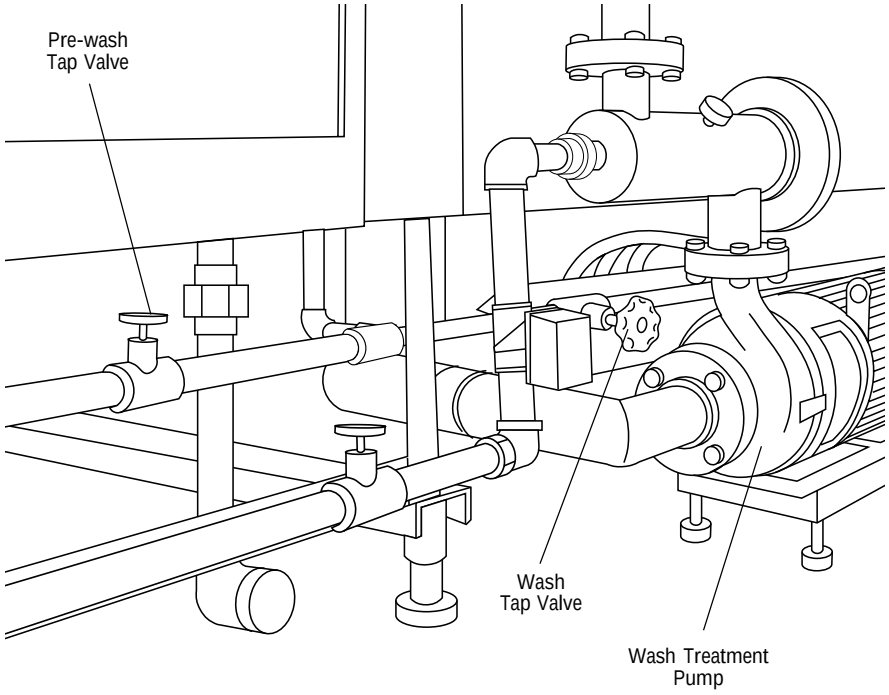


Figure 6-4. Close Pre-wash and Wash Tap Valves

⚠ WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Only fully qualified service personnel should assemble and/or make adjustments to this equipment. Assembly or adjustments done by inexperienced, unqualified personnel could cause personal injury or result in costly damage.

⚠ WARNING BURN HAZARD: Pipes may be extremely hot.

⚠ WARNING BURN HAZARD: When opening load-end neoprene curtain to observe pre-wash spray, hot (180°F [82°C]) water may be sprayed out of the chamber if spray is adjusted incorrectly.

⚠ WARNING - FALL HAZARD: To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

6. Press **START** button and run washer for 15 minutes. Monitor mechanical operation of the washer and check for leaks.
7. Press **STOP** button. Turn on remaining utility supplies (steam) and check for piping leaks. Fix all leaks.
8. With washer running, balance final rinse water flow as follows:
   a. Completely close pre-wash and wash tap valves (see Figure 6-4).
   b. Make sure manual wash and rinse drain valves are closed.
   c. Using a pipe wrench, remove observation caps from the wash and rinse drain spouts (see Figure 6-5).

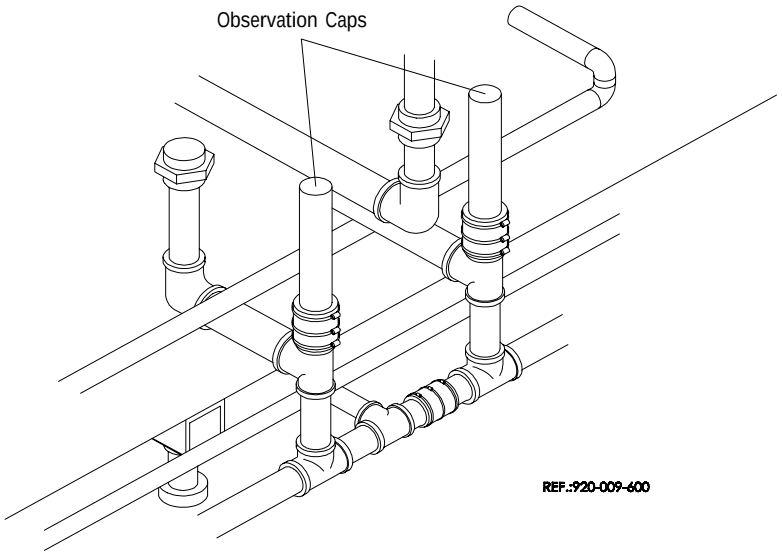


Figure 6-5. Remove Observation Caps

   d. Observe the wash and rinse overflows. At this time, there should be no overflow from the wash section. Rinse section should be generating a heavy overflow.
   e. Adjust pre-wash water spray as follows:
      1. Open pre-wash tap valve two turns.
      2. Carefully observe the pre-wash spray by opening the neoprene curtain on the load end.
      3. Pre-wash spray is adjusted correctly if bottom jets spray the water up 8 to 10 inches higher than the conveyor belt. If water is sprayed out of the chamber, partially close pre-wash tap valve. If water is not sprayed high enough (8 to 10 inches above conveyor belt), open tap valve in one turn increments until correct spray is obtained.
   f. Allow washer to run for 10 minutes.
   g. Check wash and rinse overflows. At this time, wash section should be generating a small overflow (trickle) and rinse section should be generating at least a small overflow. If now overflow exists from the rinse section, decrease the pre-wash water spray.

WARNING BURN HAZARD: Pipes may be extremely hot.

WARNING - FALL HAZARD: To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

Operational Checklist

NOTE: Operational checklist must be completed prior to unit operation by the customer.

Complete the following checklist to assure washer is correctly operating.

- ❑ Wash section generates a small overflow.
- ❑ Rinse section generates, at least, a small overflow.
- ❑ Pre-wash spray correctly adjusted.
- ❑ Hydraulic hold down system correctly balanced.
- ❑ Spray jets aimed correctly.
- ❑ Wash solution temperature maintained between 140° and 160°F (60° and 71°C). Wash section steam coil functioning properly.
- ❑ Rinse water temperature maintained at 180°F (82°C). Rinse section steam coil functioning properly.
- ❑ Final rinse water temperature maintained between 185° and 195°F (85° and 91°C).
- ❑ All gauges are functioning correctly.
- ❑ Drive system stop buttons on load- and unload-end control panels functioning properly.
- ❑ Optional proximity switch conveyor stop functioning properly.
- ❑ Cabinet joints are completely sealed, no leaks. (For verification, run machine for 1/2 hour.)
- ❑ Each chamber section is performing functions as specified by customer order.

This unit is now ready for a thorough System Field Test, Calibration and a first time Preventive Maintenance Checklist Inspection by a qualified STERIS service representative. Contact your STERIS Service Representative for availability and information on this service.